



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Michael P. Murphy
Regional Director

STATEMENT OF LEGAL AND FACTUAL BASIS

Omega Protein, Inc.
610 Menhaden Road
Reedville, VA
Permit No. PRO-40278

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Omega Protein, Inc. has applied for a significant modification to the Title V Operating Permit for its Reedville, Virginia facility. The Department has reviewed the application and has prepared a draft significant modification to the Title V Operating Permit.

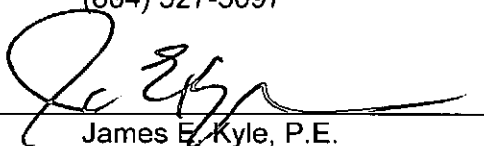
Engineer/Permit Contact:


Sherry L. Tostenson
(804) 527-5097

Date:

9/25/14

Air Permit Manager:


James E. Kyle, P.E.

Date:

9/25/2014

Deputy Regional Director:


Kyle Ivar Winter, P.E.

Date:

9/26/14

FACILITY INFORMATION

Permittee

Omega Protein, Inc.
P.O. Box 175
Reedville, VA 22539

Facility

Omega Protein, Inc.
610 Menhaden Road
Reedville, VA 22539

County-Plant Identification Number: 51-133-0011

Source Description:

NAICS Code: 311712 – Seafood Product Preparation and Packaging
Primary SIC Code Number – 2077 Animal and Marine Fats and Oils

Menhaden fish conveyed from holding bins to indirect steam-heated cookers that break down the fat cells and coagulate the protein of the fish. The cooked fish pulp goes through a series of hydraulic screw presses where the oil-water emulsion (press liquor) is separated from the cooked fish. The residual solids (fish scrap) are conveyed to indirect steam dryers and then airless dryers. The dried fish solids are cooled and conveyed to a hammer mill for grinding, then treated and cured and sold as fish meal. The press liquor passes through centrifugal decanters to remove suspended fines. The press liquor is heated and pumped to a bank of centrifugal separators which separate oil from the water (stickwater). The oil is then fed through a series of polisher centrifuges where the remaining fines and moisture are removed. This oil goes through a refining process where it is bleached, hydrogenised, and deodorized, then stored in above ground storage tanks prior to sale. The stickwater is fed to a series of evaporators where the solids are concentrated to 50%. These condensed fish solubles are either fed back onto the fish scrap prior to steam drying or prepared for sale as solubles.

The facility is a Title V major source of sulfur dioxide and nitrogen dioxide. This source is located in an attainment area for all pollutants and is a PSD minor source. The facility was issued an initial Title V Operating Permit on January 30, 2007 and renewed on September 30, 2013 and is currently permitted under a Minor NSR Permit issued on August 18, 2014.

The Title V significant modification request application was received on July 18, 2014. The application was deemed to be timely and complete on July 18, 2014; therefore, the application shield was effective upon this date. The Title V significant modification request is to include the changes to the underlying permit. To highlight some of these changes, propane was added as a fuel to be burned in the boilers along with limiting the facility to below PSD levels.

COMPLIANCE STATUS

A full compliance evaluation with a site visit was last conducted on August 23, 2013. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, have been evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The significant emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment and Associated Vaporizers and Airless Dryer Combustion							
BW1 BW2	2 3	Babcock and Wilcox boilers fired on distillate oil, residual oil, bio-fuel, non-condensable process gases (NCG), and liquefied petroleum gas (LPG) in the form of propane	Heat input 112 MM BTU/hr each, steam output 125,000 lb/hr @ 250 psig, 400°F	----	----	----	August 18, 2014
RAN1 RAN2		Ransome ID series LP Gas Vaporizers	1.68 MMBtu/hr (each)	----	----	----	August 18, 2014
CB3	4	Cleaver Brooks CB-100-500-250ST boiler fired on No. 2 fuel oil-fired and liquefied petroleum gas (LPG) in the form of propane	20.9 MMBtu/hr	----	----	----	August 18, 2014
RAN3		Ransome 360 LP Gas Vaporizer	0.360 MMBtu/hr	----	----	----	August 18, 2014
NUK (CB4)	5	GTS Energy NUK 800 liquefied petroleum gas (LPG) in the form of propane-fired boiler	4.7 MM Btu/hr	----	----	----	August 18, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
D1 D2	8 9	Dupps Airless Dryers fired on distillate oil, residual oil, renewable diesel, and liquefied petroleum gas (LPG) in the form of propane with heat exchanger, waste heat recovery unit, and high efficiency cyclones inherent to process	Heat input 29.7 MM BTU/hr each burner, 108,388 lb dried/hr each equivalent to ≈162,500 fish processed/hr each	Babcock and Wilcox boilers	BW1 BW2	PM, VOC	August 18, 2014

Process Equipment

S1 S2	2/3	TST 150 Steam Dryers	15,000 lb/hr steam loading each; 91,712.5 lb dried/hr each Equivalent to ≈137,500 fish processed/hr each	Babcock and Wilcox boilers	BW1 BW2	PM, VOC	August 18, 2014
S3	2/3	TST 200 Steam Dryer	20,000 lb/hr steam loading; 114,390.5 lb dried/hr equivalent to ≈171,500 fish processed/hr	Babcock and Wilcox boilers	BW1 BW2	PM, VOC	August 18, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
MC2	10	Fish Meal Cooler	233,450 lb dried/hr equivalent to ≈350,000 fish processed/hr	High efficiency cyclone	-----	PM/PM-10	August 18, 2014
CT1	-----	Cooling Tower, non-contact evaporative type	8,450 gal water/min	-----	-----	-----	August 18, 2014

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

The 2013 annual emissions (as reported in CEDS) are summarized in the following table:

2013 Facility Wide Criteria Pollutant Emissions in tons/year					
PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂	VOC
2.31	1.03	4.75	17.68	68.32	0.36

2013 Facility Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emissions in tons/yr
Formaldehyde	0.08

EMISSION UNIT APPLICABLE REQUIREMENTS –

Fuel Burning Equipment Boilers (BW1, BW2, CB3, NUK (CB4), and Associated Vaporizers (RAN 1 and RAN 2 for BW1 and BW2 and RAN 3 for CB3) and Airless Dryer Combustion (D1 and D2)

Note:

The Dupps Airless Dryers D1 and D2 are both fuel combustion and processing equipment; limits relating to fuel combustion can be found under the “Fuel Burning Equipment and Associated Vaporizers and Airless Dryer Combustion Requirements” and limits relating to processing can be found under the “Process Equipment Requirements” of the Title V Permit. Process emissions from the steam dryers S1-S3 are non-condensable gases that are combusted in boilers BW1 and BW2; they are controlled as part of the boilers’ emission limits under “Fuel Burning Equipment Requirements” of the Title V Permit.

The Title V significant modification is based on changes to the underlying permit conditions as follows:

Limitations:

Condition 5 establishes the minimum temperature in BW1 and BW2’s boilers’ flame zones required to achieve the minimum destruction efficiency for controlling VOC emissions of non-condensable gases (NCGs) from dryers’ (S1-S3, D1, and D2). This condition originally stated

"...shall operate at a temperature, *as measured* in each boiler's flame zone, in order to achieve the destruction efficiency referenced in condition...." The current condition now states "...shall operate at *conditions which correlate to a temperature* in each boiler's flame zone established during the most recent performance test that demonstrated compliance, in order to achieve the destruction efficiency referenced in condition...." The current condition added the following as underlined:

"Any periods of operation in which the temperature in the flame zone was less than 2,000°F or the minimum temperature established during the most recent performance test that demonstrated compliance based on the operating parameters correlating to the temperature during the stack test, shall be recorded for each event and an explanation provided for the reduction in temperature."

The rationale for this change is as follows:

The flame zone temperatures are measured by infrared sensors, which can be viewed through various ports. The ports where the temperature is viewed are subject to fouling by soot accumulation that makes it impossible to view the flame zone temperature until the ports are cleaned. In order to clean the ports, the boilers need to be shut down for several days to allow the ports to cool. The ports were not originally designed for this purpose. Another problem is the combustion chamber end wall temperatures are monitored by high heat rated thermocouples of inconel, which only last for a few days. The source has tried various lengths and various diameter thermocouples without any lasting success.

The monitoring was originally intended to ensure the destruction efficiency of the non-condensable gases (NCGs). The destruction efficiency has been proven acceptable through stack testing. This stack testing also demonstrated that various parameters can serve as surrogates to temperature with regard to proving destruction efficiency. The facility has an oxygen trim system that monitors the oxygen to ensure adequate combustion, and the permit contains language intended to provide flexibility for the permittee and the department's compliance staff regarding acceptable operating parameters.

Condition 6 limits the approved fuels used in boilers BW1, BW2, and CB3, associated vaporizers RAN1, RAN2, and RAN3, boiler NUK (or CB4), and Dupps Airless Dryers D1 and D2, and provides the fuel specifications. The current condition added the cleaner fuel of LPG in the form of propane for boilers BW1, BW2, and CB3 along with the associated vaporizers (RAN1, RAN2, and RAN3) used to convert the LPG to a gaseous state. The condition also was revised to include the boilers (CB3 and NUK (or CB4)) for the Health and Science Center.

Condition 7 limits the throughput of fuel combusted in boilers BW1 and BW2 so that no combination of allowable fuels will cause the sulfur dioxide emissions annual limit in Condition 13 to be exceeded. This condition was revised to reduce the throughput of the dirtier fuels. The revision included adding LPG (in the form of propane) with the appropriate fuel factors. The reduction of the throughputs of the dirtier fuels, and the addition of LPG ensured that the

emissions would be limited below PSD emission levels. The fuel throughput equation was revised to correspond to the reduced sulfur dioxide annual emission limit. Some emission factors were revised for the respective fuels.

Condition 10 limits the throughput of fuel combusted in boiler CB3 to 480,000 gallons/year. This condition was revised to add propane.

Condition 13 limits the criteria pollutant emissions from boilers BW1 and BW2, including combusted non-condensable process gases from the dryers (S1-S3, D1, and D2). The condition was revised to account for the change in emission limits based on the reduced use of dirtier fuels and the addition of LPG.

Condition 15 limits the criteria pollutant emissions from boiler CB3. This condition was revised to account for the change in CO emission limits due to allowing firing of propane.

Periodic Monitoring, Recordkeeping, and Reporting

Condition 24 previously required a direct temperature monitoring device in each of the two boilers, BW1 and BW2, which are used as control devices for the dryers' process streams. Direct continuous temperature measurements were required to be recorded as fifteen-minute readings and reduced to 3-hour rolling averages in order to demonstrate compliance with the NCG process stream destruction efficiency requirement. The current condition was revised to use parametric monitoring correlating to the temperatures in conditions 4 and 5. The required continuous recorder will have an accuracy as approved by DEQ of the parameter correlating to the minimum temperatures. The recording of the data from the monitoring will still be the same frequency and the average will still be no less than 90% valid readings.

Current condition 30 was revised to require semi-annual fuel quality reports for only boiler CB3 as this is the only steam generating unit which is subject to NSPS. The submission of reports to EPA was removed, as Virginia is delegated to receive the semi-annual fuel reports for NSPS Dc.

EMISSION UNIT APPLICABLE REQUIREMENTS – Processing Equipment (S1, S2, S3, D1, D2, MC2)

No changes.

FACILITY WIDE CONDITIONS

No changes.

GENERAL CONDITIONS

No changes.

STATE-ONLY APPLICABLE REQUIREMENTS

None were identified.

FUTURE APPLICABLE REQUIREMENTS

None were identified.

INAPPLICABLE REQUIREMENTS

None of the fuel burning emissions units, steam dryers, or cooling tower are subject to 40 CFR Part 64, Compliance Assurance Monitoring. The facility as a whole is not subject to 40 CFR Parts 51, 52, 70, and 71, Title V Greenhouse Gas Tailoring Rule, Phase 1 because the facility has not triggered major NSR review since January 2, 2011. MACT Q does not apply to the cooling tower because the NSR Permit prohibits the source from using chromium-containing water treatment chemicals.

40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units is not applicable to NUK (CB4) because the boiler's heat input rate is less than the 10 mmBTU/hr applicability level. Regarding insignificant emissions units, the fuel storage tanks are not subject to 40 CFR 60, Subpart Kb, Volatile Organic Liquid Storage Vessels Standards and 9 VAC 5-40-5220 VOC Standards for Petroleum Liquid Storage and Transfer Operations (Rule 4-37) because the residual and diesel fuels' maximum true vapor pressure is below those standards' applicability levels.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all applicable requirements of the Clean Air Act. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
TK46	No.2 oil tank 308,000 gal (1972)	9 VAC 5-80-720B	VOC	N/A
TK75	No.2 oil tank 152,000 gal (1976)	9 VAC 5-80-720B	VOC	N/A
TKFT1	No.2 oil tank 20,000 gal (2003)	9 VAC 5-80-720B	VOC	N/A

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
TK70	No. 6 oil tank 508,000 gal (1971)	9 VAC 5-80-720B	VOC	N/A
TK71	No. 6 oil tank 508,000 gal (1972)	9 VAC 5-80-720B	VOC	N/A
TK21	No. 6 oil tank 302,000 gal (2009)	9 VAC 5-80-720B	VOC	N/A
TK38	Used motor oil tank 15,600 gal (1985)	9 VAC 5-80-720B	VOC	N/A
TK77	Hydraulic oil tank 8,000 gal (1970)	9 VAC 5-80-720B	VOC	N/A
TK14	Lubricating oil tank 7,600 gal (1975)	9 VAC 5-80-720B	VOC	N/A
TK1	Fish oil tank 15,000 gal	9 VAC 5-80-720B	VOC	N/A
TK2	Fish oil tank 24,000 gal	9 VAC 5-80-720B	VOC	N/A
TK3	Fish oil tank 24,000 gal	9 VAC 5-80-720B	VOC	N/A
TK4	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TK5	Fish oil tank 132,000 gal	9 VAC 5-80-720B	VOC	N/A
TK6	Fish oil tank 59,000 gal	9 VAC 5-80-720B	VOC	N/A
TK7	Fish oil tank 508,000 gal	9 VAC 5-80-720B	VOC	N/A
TK8	Fish oil tank 308,000 gal	9 VAC 5-80-720B	VOC	N/A
TK9	Fish oil tank 294,000 gal	9 VAC 5-80-720B	VOC	N/A
TK10	Fish oil tank 93,000 gal	9 VAC 5-80-720B	VOC	N/A
TK11	Fish oil tank 8,300 gal	9 VAC 5-80-720B	VOC	N/A

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
TK24	Fish oil tank 308,000 gal	9 VAC 5-80-720B	VOC	N/A
TK27	Fish oil tank 508,000 gal	9 VAC 5-80-720B	VOC	N/A
TK47	Fish oil tank 308,000 gal	9 VAC 5-80-720B	VOC	N/A
TK77	Fish oil tank 508,000 gal	9 VAC 5-80-720B	VOC	N/A
TKF11	Fish oil tank 18,000 gal	9 VAC 5-80-720B	VOC	N/A
TKF12	Fish oil tank 25,000 gal	9 VAC 5-80-720B	VOC	N/A
TKF1001	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A
TKF1001A	Fish oil tank 300,000 gal	9 VAC 5-80-720B	VOC	N/A
TKF1001B	Fish oil tank 300,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFOL-1	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFOL-2	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFOL-3	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFOL-5	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFST-1	Fish oil tank 20,000 gal	9 VAC 5-80-720B	VOC	N/A
TKFST-2	Fish oil tank 20,800 gal	9 VAC 5-80-720B	VOC	N/A
TKPT1	Fish oil tank 220,000 gal	9 VAC 5-80-720B	VOC	N/A
TKPT13	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A
TKPT2	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A
TKPT3	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A
TKPT4	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A
TKPT6	Fish oil tank 20,600 gal	9 VAC 5-80-720B	VOC	N/A

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
TKPT7	Fish oil tank 8,000 gal	9 VAC 5-80-720B	VOC	N/A
TKPT9	Fish oil tank 8,000 gal	9 VAC 5-80-720B	VOC	N/A

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are available for public review.

PUBLIC PARTICIPATION

A public notice ran in Northumberland Echo on August 20, 2014. The 30-day public comment period and the 45-day EPA comment period ran concurrently. The 30-day public comment period ran from August 20, 2014 to September 19, 2014. No comments were received during the public comment period. EPA stated in a September 23, 2014 e-mail they would not be commenting on this permit.